

Competitiveness and Climate Policy: Avoiding Leakage of Jobs and Emissions

**Testimony of
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Mr. Chairman, Mr. Upton, members of the subcommittee, thank you for the opportunity to testify on the topic of competitiveness and climate policy, and avoiding leakage of jobs and greenhouse gas emissions. My name is Eileen Claussen, and I am the President of the Pew Center on Global Climate Change.

The Pew Center on Global Climate Change is an independent non-profit, non-partisan organization dedicated to advancing practical and effective solutions and policies to address global climate change. Our work is informed by our Business Environmental Leadership Council (BELC), a group of 44 major companies, most in the Fortune 500, that work with the Center to educate opinion leaders on climate change risks, challenges, and solutions. The Pew Center is also a founding member of the U. S. Climate Action Partnership, a coalition of 25 leading businesses and five environmental organizations that have come together to call on the federal government to quickly enact strong national legislation to require significant reductions of greenhouse gas emissions.

Addressing global climate change presents policy challenges at both the domestic and the international levels, and the issue of competitiveness underscores the very close nexus between the two. The immediate task before this subcommittee, and before the Congress, is developing and enacting a comprehensive domestic program to limit and reduce U.S. greenhouse gas (GHG) emissions. Moving forward with a mandatory program to reduce U.S. emissions in advance of a comprehensive international agreement presents both risks and opportunities. On the one hand, domestic GHG limits may lead to a shift of some energy-intensive production to countries without climate constraints, resulting in “emissions leakage” and posing competitiveness concerns for some domestic industries. On the other hand, a mandatory domestic program in the United States is an essential step towards the development of an effective global climate agreement.

In the long term, a strong multilateral framework ensuring that all major economies contribute their fair share to the global climate effort is, I believe, the most effective means of addressing competitiveness concerns. Achieving such an agreement must be a fundamental objective of U.S. climate policy. In designing a domestic climate program, the question before Congress is what to do in the interim – until an effective global agreement is in place. In

considering this question, it is important to distinguish two distinct but closely related policy challenges: how best to encourage strong climate action by other countries, and in particular, by the major emerging economies; and how best to minimize potential competitiveness impacts on U.S. industry. I believe that each of these two objectives is most effectively addressed through a different set of policy responses, and it is important to ensure that our efforts to address one do not undermine the other.

I will focus today primarily on the second of these challenges: designing transitional policies to minimize potential competitiveness impacts on U.S. industry.¹ Our analysis of the underlying issues leads us to conclude that the potential competitiveness impacts of domestic climate policy are modest and are manageable. In my testimony, I will: 1) present our analysis of the nature and potential magnitude of the competitiveness challenge; 2) discuss a range of options for addressing competitiveness concerns; and 3) outline what we believe would be the most effective approach. This approach would employ output-based emission allocations to vulnerable industries, phased out over time, and other transition assistance to affected workers and communities.

Understanding Competitiveness Concerns

A first step in considering options to address competitiveness is assessing the potential scope and magnitude of potential competitiveness impacts. It is not the competitiveness of the U.S. economy as a whole that is at issue. (According to an MIT analysis of the Lieberman-Warner Climate Security Act of 2007,² the cost of meeting the bill's emission reduction targets in 2050, by when the U.S. economy is projected to triple in size, would result in GDP being 1% less than would otherwise be the case.³) Rather, the concern centers on a relatively narrow segment of the U.S. economy: energy-intensive industries whose goods are traded globally, such as steel, aluminum, cement, paper, glass, and chemicals. As heavy users of energy, these industries will face higher costs as a result of domestic GHG constraints; however, as the prices of their goods are set globally, their ability to pass along these price increases is limited.

Competitiveness impacts can be experienced as a loss in market share to foreign producers, a shift in new investment, or, in extreme cases, the relocation of manufacturing facilities overseas. In assessing the economic consequences of past environmental regulation in the United States, most analyses find little evidence of significant competitive harm to U.S. firms. Many studies conclude that other factors—such as labor costs, the availability of capital, and proximity to raw materials and markets—weigh far more heavily in firms' location decisions. One comprehensive review—synthesizing dozens of studies of the impact of U.S. environmental regulation on a range of sectors—concluded that while new environmental rules

¹ For a discussion of how best to encourage strong climate action by other countries, see the testimony on *The Roadmap from Poznan to Copenhagen – Preconditions for Success* by Elliot Diringer, Vice President for International Strategies for the Pew Center on Global Climate Change, submitted to the Select Committee on Energy Independence and Global Warming, U.S. House of Representatives, February 4, 2009. (<http://www.pewclimate.org/testimony/diringer/02-04-09>)

² S.2191 of the 110th Congress.

³ Paltsev, Sergey, et al., *Assessment of U.S. Cap-and-Trade Proposals*, MIT Joint Program on the Science and Policy of Global Change Report 146, Appendix D, February 2008.

imposed significant costs on regulated industries, they did not appreciably affect patterns of trade.⁴

In the case of GHG regulation, the additional cost to firms could include the compliance cost of purchasing allowances to cover direct emissions; indirect compliance costs embedded in higher fuel or electricity prices; further demand-driven price increases for lower-GHG fuels such as natural gas; and the costs of equipment and process changes to abate emissions or reduce energy use.

In gauging the potential impacts of GHG regulation, it is important to distinguish the “competitiveness” effect from the broader economic impact on a given industry or firm. A mandatory climate policy will present costs for U.S. firms regardless of what action is taken by other countries. In the case of energy-intensive industries, one potential impact of pricing carbon could be a decline in demand for their products as consumers substitute less GHG-intensive products. This is distinct, however, from the international “competitiveness” impact of GHG regulation, which is only that portion of the total impact on a firm resulting from an imbalance between stronger GHG constraints within, and weaker GHG constraints outside, the United States.

To empirically quantify the potential magnitude of this competitiveness impact, the Pew Center commissioned an analysis by economists at the Resources for the Future. This work, which we will be publishing shortly, analyzes 20 years of data in order to discern the historical relationship between electricity prices and production, consumption, and employment in more than 400 U.S. manufacturing industries. On that basis, the analysis then projects the potential competitiveness impacts of a U.S. carbon price, assuming no comparable action in other countries. (The analysis assumes a CO₂ price of \$15 per ton. The Energy Information Administration’s core case analysis of the Lieberman-Warner cap-and-trade bill estimated a 2012 allowance price of \$16.88 per ton CO₂.)

The analysis finds an average production decline of 1.3 percent across U.S. manufacturing, but also a 0.6 percent decline in consumption, suggesting a competitiveness effect of just 0.7 percent. For energy-intensive industries (those whose energy costs exceed 10 percent of shipment value), the analysis projects that average U.S. output declines about 4 percent. However, consumption declines 3 percent, so that only a 1 percent decline in production (or one-fourth of the total decline) can be attributed to an increase in imports, or a loss of competitiveness. For specific energy-intensive industries, including chemicals, paper, iron and steel, aluminum, cement, and bulk glass, the analysis projects a competitiveness impact ranging from 0.6 percent to 0.9 percent, although within certain subsectors, the impact could be higher. What this analysis demonstrates very clearly is that most of the projected decline in production stems from a reduction in domestic demand, not an increase in imports. In other words, most of the projected economic impact on energy-intensive industries reflects a move toward less emissions-intensive products—as would be expected from an effective climate change policy—not a movement of jobs and production overseas. At the price level studied, the projected competitiveness impacts, as well as the broader economic effects on energy-intensive

⁴ Jaffe, A.B., S.R. Peterson, P.R. Portney, and R.N. Stavins, *Environmental Regulation and the Competitiveness of U.S. Manufacturing: What Does the Evidence Tell Us?*, Journal of Economic Literature, Vol. 23, March 1995.

industries, are modest and, in our view, can be readily managed with a range of policy instruments.

Policy Options

In the design of a domestic cap-and-trade system, competitiveness concerns can be addressed in part through a variety of cost-containment measures, such as banking and borrowing and the use of offsets, which can help reduce the costs to all firms, including energy-intensive, trade-exposed industries. However, other transitional policies may be needed to directly address competitiveness concerns in the period preceding the establishment of an effective international framework. Options include: fully or partially exempting potentially vulnerable firms from the cap-and-trade system; compensating firms for the costs of GHG regulation through allowance allocation or tax rebates; transition assistance to help firms adopt lower-GHG technologies, and to help communities and workers adjust to changing labor markets; and border measures such as taxes on energy-intensive imports from countries without GHG controls. In addition, a domestic policy could be designed to encourage and anticipate international sectoral agreements establishing the respective obligations of major producing companies within given sectors.

Exclusion from Coverage – One option is to fully or partially exclude vulnerable sectors or industries from coverage under the cap-and-trade program. For instance, under the Lieberman-Warner Climate Security Act of 2008,⁵ the direct “process” emissions of many energy-intensive industries would not be subject to GHG limits. Exclusions would relieve trade-exposed industries of any of any requirement to hold emission allowances and thereby eliminate direct regulatory costs, shielding them not only from competitiveness impacts but also from some of the broader economic effects of pricing carbon. However, by limiting the scope of the cap-and-trade system, exclusions would undermine the goal of reducing GHG emissions economy-wide, and would reduce the economic efficiency of a national GHG reduction program. They also would give exempted industries an economic advantage over nonexempt domestic firms and sectors, including competitors. Moreover, firms whose emissions are exempted would still face the indirect costs of higher energy prices.

Compensation for the Costs of GHG Regulation – Another option is to include these sectors in the cap-and-trade system but compensate them for the costs of GHG regulation. Key design considerations include the scope, form, and means of calculating such compensation, and whether and how it should be phased out.

As noted earlier, firms covered by the cap-and-trade system face both direct and indirect costs of regulation. The direct, or compliance, cost is the cost of purchasing any allowances needed to cover direct emissions regulated under the cap. Indirect costs include higher prices for electricity and natural gas (reflecting an embedded carbon price and, in the case of natural gas, rising demand for this less GHG-intensive fuel), and the costs of equipment and process changes to abate emissions or reduce energy use. For energy-intensive industries, the indirect cost of higher energy prices represents a significant portion of the total potential cost.

⁵ S.3036 of the 110th Congress.

One form of compensation is providing free emission allowances. In the case of direct emissions, allowances could be granted on the basis of historic emissions (“grandfathering”) and energy-intensive sectors could receive a more generous allocation than other emitters. For instance, energy-intensive industries could receive a full free allocation while others receive allocations for 80 percent of their historic emissions. Over time, the energy-intensive sectors could continue to be treated more generously—for instance, continuing to receive a higher proportion of free allowances as the allocation system transitions to fuller auctioning. Because free allocation provides the same economic incentive to reduce emissions as does an auction, keeping energy-intensive sectors under the cap, but providing free allowances, provides for greater environmental effectiveness and economic efficiency than excluding them.

Additional allowances could be provided to compensate for indirect costs. However, as future energy prices cannot be predicted, there is no way of determining in advance whether this allocation matches the firms’ actual costs.

Another form of compensation for direct and/or indirect costs could be tax credits or rebates. One potential source of revenue for such measures is proceeds from the auction of emission allowances. A tax rebate would be a direct payment to compensate a firm for GHG regulatory costs; a tax credit could alternatively offset those costs by reducing a non-GHG burden such as corporate or payroll taxes, or healthcare or retirement costs.⁶

Whatever form the compensation takes, one critical issue is the basis for calculating the appropriate level. In the case of direct compliance costs, granting allowances on the basis of historical emissions can effectively penalize early action and reward relatively heavier emitters within an industry. In addition, it does not necessarily guard against emissions leakage or a loss of jobs, as a firm could choose to maximize profits by selling its free allowances and reducing production. There is also the risk that firms will be over-compensated and realize windfall profits.

Alternatively, compensation could be “output-based,” pegged to actual production levels and/or energy consumption. Firms could be compensated in full for direct or indirect costs; or an output-based approach could apply a performance standard (i.e., emissions or energy use per unit of production) to encourage and reward lower GHG intensity production. The Inslee-Doyle Carbon Leakage Prevention Act⁷ introduced in the 110th Congress would have allocated allowances to compensate for both direct and indirect costs based on a facility’s level of output, adjusted by an “efficiency factor” which could be adjusted over time to provide firms an ongoing incentive to switch to lower-GHG processes and energy sources. The compensation would shield them from regulatory costs, lowering the risk of emissions leakage and competitiveness impacts, while maintaining an incentive for improved environmental performance and continued operation.

⁶ Houser, Trevor et al., *Leveling the Carbon Playing Field: International Competition and US Climate Policy Design*, Peterson Institute for International Economics and World Resources Institute, May 2008.

⁷ H.R. 7146 in the 110th Congress.

As with the exclusion of trade-exposed sectors from the cap, the remedy provided by these compensation approaches extends beyond any actual competitiveness effect. Whether based on output or historical emissions, most of the proposals offered to date aim to compensate firms for most or all of the increased costs associated with GHG regulation, not just for the impacts they may face due to the asymmetry between GHG constraints within and outside the United States. To limit compensation to competitiveness impacts alone would require in-depth financial knowledge of each firm and/or complex calculations that could be reliably performed only once the impacts have occurred. A drawback of a compensation approach is that the financial resources required—whether drawn from auction revenue or other sources—are not available for other climate- or non-climate-related purposes.

If compensation is provided, one important consideration is how long it should be maintained and at what level. Phasing out the compensation would give firms additional incentive to improve their GHG performance but would also make them more vulnerable to competitiveness impacts. A mandatory program could provide for periodic review of any allowances or other compensation to vulnerable sectors to consider adjusting them on the basis of new information. For instance, if the legislation establishes a specific timetable for moving from free allocation to auctioning, this transition might be slowed for specific industries if there are clear indications of competitiveness impacts. Alternatively, compensation could be phased out or ended if other countries take stronger action or new international agreements are reached. The review could focus narrowly on the issue of trade-related impacts or it could be a broad-based review also looking at new science, technology, and economic data.

Transition Assistance – Another option is to provide transition assistance to vulnerable firms to help them adopt lower-GHG technologies, and to communities and workers affected by competitiveness impacts. In the case of firms, measures could include tax incentives such as accelerated depreciation to encourage the replacement of inefficient technologies, or tax credits for the development or adoption of lower-GHG alternatives. Firms could also be incentivized to switch to low carbon energy sources, for example through subsidies for purchases or generation of renewable energy.

Where competitiveness impacts are unavoidable, assistance can be provided to both workers and communities. Previous government efforts to help communities adjust to economic changes resulting from national policies provide lessons for shaping similar efforts as part of climate change policy.⁸ At the level of individual workers, policies such as the Workforce Investment Act providing income support and retraining to help move workers into new jobs can provide a blueprint for transition programs to assist workers adversely affected by competitiveness imbalances under a climate policy.⁹

Border Adjustment Measures – Another strategy is to try to equalize GHG-related costs for U.S. and foreign producers by imposing a cost or other requirement on energy-intensive imports from countries with weaker or no GHG constraints. One option is a border tax based on an import's "embedded" emissions (equal to the compliance costs for a domestic producer of an

⁸ Greenwald, Judith M., Brandon Roberts, and Andrew D. Reamer, *Community Adjustment to Climate Change Policy*, Pew Center on Global Climate Change, December 2001.

⁹ Barrett, Jim, *Worker Transition and Global Climate Change*, Pew Center on Global Climate Change, December 2001.

equivalent good). An alternative approach, described by proponents as more likely to withstand challenge under international trade rules, would instead require that imports be accompanied by allowances for their associated emissions. The Lieberman-Warner bill would have required allowances for energy-intensive imports from countries not determined by an appointed commission to be undertaking “comparable” action to reduce emissions. To avoid driving up allowance prices for U.S. firms, importers would buy from an unallocated pool of “reserve allowances” at a price set by the government. In the 110th Congress, the Bingaman-Specter bill, the Dingell-Boucher discussion draft, and Chairman Markey’s ICAP bill all adopted variations of this approach.

One major shortcoming of this approach is its limited effectiveness in reducing competitiveness impacts. As the border adjustment measures would apply only to imports to the United States, they would not help “level the playing field” in the larger global market where U.S. producers may face greater competition from foreign producers.

Among the other issues raised by unilateral border measures is their consistency with World Trade Organization (WTO) rules. The legality of a given measure would depend in part on its specific design and on the types of climate policies in place domestically. As such approaches have not been previously employed, there are no definitive rulings, and experts differ in their interpretation of relevant WTO precedents.¹⁰ The legal uncertainties ultimately would be resolved only through the adjudication of a WTO challenge, a likely prospect if unilateral border measures were to be applied by the United States or another country.

Trade measures also present significant administrative challenges—in particular, calculating the GHG intensity of imported goods. Would the imported good’s GHG intensity be calculated at the sector, firm, or plant level? Would such an assessment rely on data from the exporting country? In addition, criteria are needed to determine whether a country is meeting a “comparability” or other standard. Under the Lieberman-Warner bill, “comparable action” would have been defined as either a) a percentage reduction in GHGs equivalent to that achieved by the United States, or b) as determined by the commission, “tak[ing] into consideration... the extent to which” a country has implemented measures and deployed state-of-the-art technologies to reduce emissions. A literal application of a “comparability” standard to developing countries—particularly if border requirements are imposed upon or very soon after mandatory domestic limits are put in place—would likely be viewed internationally as inconsistent with the principle of “common but differentiated responsibilities” agreed to by the United States in the UN Framework Convention on Climate Change (UNFCCC).

Another important consideration is the potential impact on trade and international relations. If the United States were to impose border requirements, there is a greater likelihood that it would become the target of similar measures. European policymakers also are weighing the use of border measures and have argued that the emission targets under consideration in the United States are not comparable to those adopted by the European Union. U.S. trade officials and others also have voiced strong concern about the potential for retaliatory trade measures by

¹⁰ For a discussion of WTO-related issues, see Bordoff, Jason E., *International Trade Law and the Economics of Climate Policy: Evaluating the Legality and Effectiveness of Proposals to Address Competitiveness and Leakage Concerns*, Brookings Institution, June 2008.

targeted countries, leading to escalating trade conflicts.¹¹ Proponents argue that the threat of unilateral trade measures would give the United States greater leverage in international climate negotiations. However, there is a significant risk that they would engender more conflict than cooperation, in the end making it more difficult to reach agreements that could more effectively address competitiveness concerns.

International Sectoral Agreements – All of the preceding options are measures that would be implemented domestically. Another approach that would help reduce emissions within and outside the United States, while addressing competitiveness concerns, is to negotiate international agreements setting GHG standards or other measures within energy-intensive globally-traded sectors. For example, major steel-producing countries could agree on standards limiting GHGs per ton of steel, which could be differentiated initially according to national circumstances and converge over time. Sectoral agreements could take a number of forms, depending on the specific sectors, and could be negotiated as stand-alone agreements or as part of a comprehensive climate framework.¹²

Within the domestic context, a purely sector-by-sector approach would sacrifice the broad coverage and economic efficiency of an economy-wide cap-and-trade program. However, sectoral agreements could exist alongside a cap-and-trade program, and the system could be designed to encourage U.S. producers to work toward their establishment. One option would be to provide for a sector's exclusion from the cap once an international agreement of comparable stringency is in place (although, as noted, diminishing the scope of the cap-and-trade system by exempting one or more sectors would limit its economic efficiency). An alternative is to keep the sectors under the cap but align their obligations under the domestic program and the international sectoral agreement. For instance, a firm's emissions allowance under the trading system could be based on the GHG standard that is agreed internationally.

In keeping with the principle of “common but differentiated responsibilities,” an international sectoral agreement may not set fully equivalent requirements for all countries, particularly at the outset. In that event, compensation for energy-intensive industries could be maintained at some level and phased out as the requirements for other countries rise to those borne by the United States.

Recommendations: An Allowance-based Approach

Based on our assessment of the available options, the Pew Center believes that Congress should seek to address competitiveness concerns by: 1) strongly encouraging the executive branch to negotiate a new multilateral climate agreement establishing strong, equitable, and verifiable commitments by all major economies; 2) including in domestic legislation incentives for such an agreement, including support for stronger action by major developing countries; and 3) including in cap-and-trade legislation transitional measures to cushion the impact of

¹¹ Remarks of U.S. Trade Representative Susan C. Schwab to U.S. Chamber of Commerce, January 17, 2008.

¹² Bodansky, Daniel, *International Sectoral Agreements in a Post-2012 Climate Framework*, Pew Center on Global Climate Change, May 2007.

mandatory GHG limits on energy-intensive trade-exposed industries and the workers and communities they support. These transitional measures should be structured as follows:

- In the initial phase of a cap-and-trade program, free allowances should be granted to vulnerable industries to compensate them for the costs of GHG regulation. For direct costs, allocations should be based on actual production levels. For indirect costs, allowances should reflect the emitter's production-based energy consumption, taking into account the GHG intensity of its energy supplies.
- Based on an analysis of GHG performance within a given sector, allocations should be set initially so that producers with average GHG performance are fully compensated for regulatory costs, while those performing above or below the norm receive allowances whose value is greater or less than their costs, respectively. This factor should be adjusted over time as an incentive to producers to continually improve their GHG performance.
- Allowance levels should decline over time, gradually transitioning to full auctioning, although at a slower rate than for other sectors.
- A review should be conducted periodically to assess whether sectors are experiencing competitiveness impacts and, if warranted, to adjust allowance levels and/or the rate of transition to full auctioning.
- A portion of allowance auction revenue should be earmarked for programs to assist workers and communities in cases where GHG constraints are demonstrated to have caused dislocation.
- Transition assistance should be curtailed for a given sector upon entry into force of a multilateral or sectoral agreement establishing reasonable obligations for foreign producers, or upon a Presidential determination that such measures have been instituted domestically.

We believe this approach addresses the transitional competitiveness concerns likely to arise under a mandatory cap-and-trade program, while maintaining the environmental integrity of the program and providing an ongoing incentive for producers to improve their GHG performance. We commend the subcommittee for focusing the attention of Congress on this critical issue, and would be happy to work with you as you develop legislation to address this and other dimensions of the climate challenge.

I thank you for your attention and would be happy to answer your questions.